Journal of Molecular Spectroscopy

VOLUME 147, 1991

Editor
K. Narahari Rao

Editorial Committee

Frank C. De Lucia Jon T. Hougen James K. G. Watson

ACADEMIC PRESS, INC.
Harcourt Brace Jovanovich, Publishers
San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1991 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1991 articles are as shown on the article title pages; if no fee code appears, the copy fee is the same as for current articles.

0022-2852/91 $3.00

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 147

NUMBER 1, MAY 1991

REZA ISLAMPOUR AND SHENG H. LIN. A Unified Transformation of the Complete Molecular Hamiltonian 1

P. F. BERNATH, C. R. BRAZIER, T. OLSEN, R. HAILEY, W. T. M. L. FERNANDO, CHRISTINE WOODS, AND J. L. HARDWICK. Spectroscopy of the CH Free Radical 16

E. ZWART, J. J. TER MEULEN, W. LEO MEERTS, AND L. H. COUDERT. The Submillimeter Rotation Tunneling Spectrum of the Water Dimer 27

R. A. HAILEY, C. N. JARMAN, W. T. M. L. FERNANDO, AND P. F. BERNATH. The $\tilde{B}^2\Sigma^+$–$\tilde{X}^2\Sigma^+$ Transition of CaOD 40

L. H. COUDERT, K. MATSUMURA, AND F. J. LOVAS. The Rotational–Tunneling Spectrum of the Ar–SO_2 Van der Waals Complex 46

JERZY KAROLCZAK, DENNIS J. CLOUTHIER, R. H. JUDGE, AND D. C. MOULE. High-Resolution Absorption and Pyrolysis Jet Spectroscopy of the 0_0^0 Band of the $\tilde{A}^1A'' \leftarrow \tilde{X}^1A'$ ($n - \pi^*$) Electronic Transition of Formyl Cyanide, HCOCN 61

L. FUSINA, M. CARLOTTI, G. DI LONARDO, S. N. MURZIN, AND O. N. STEPANOV. Pure Inversion and Inversion–Rotation Spectra of $^{15}ND_3$ in the Ground State 71

CLAUDIO DEGLI ESPOSTI AND LAURA FAVERO. The ν_3 Fundamental and Associated Hot Bands of Cyanogen Iodide by Diode Laser Spectroscopy ... 84

H. S. GUTOWSKY AND T. C. GERMANN. Internal Rotation and Structure of Isobutylene 91

KARIM H. HASSAN AND J. MICHAEL HOLLAS. Supersonic Jet Fluorescence and Gas Phase Absorption Spectra of Indan: Puckering Potential in S_0 and S_1 100

KALYAN K. DAS AND K. BALASUBRAMANIAN. Spectroscopic Constants and Potential Energy Curves of RhH^+ 114

GUO BUJIN AND C. LINTON. Examination of Rotational Structure, Ω Doubling, and Perturbations in 12 Low Lying Electronic States of Samarium Monoxide 120

M. A. H. SMITH, C. P. RINSLAND, AND V. MALATHY DEVI. Measurements of Self-Broadening of Infrared Absorption Lines of Ozone 142

I. KLEINER, G. T. FRASER, J. T. HOUGEN, AND A. S. PINE. Molecular-Beam Optothermal Spectrum of the OH Stretching Band of Methanol 155

A. G. MAKI, J. S. WELLS, AND J. B. BURKHOLDER. High-Resolution Measurements of the Bands of Carbonyl Sulfide between 2510 and 3150 cm^{-1} 173

ELI PERETS AND BENJAMIN E. SCHARF. Theoretical Analysis of $E_i \otimes e_\alpha \leftrightarrow E_j \otimes e_\alpha$ Vibronic Jahn–Teller Spectra 182

A. BALDACCI, S. GIORGIANNI, P. STOPPA, A. DE LORENZI, AND S. GHERSETTI. High-Resolution Infrared Study of the $\nu_2 + \nu_3$ Band of CF_3I 208

LI LI, A. M. LYYRA, W. C. STWALLEY, M. LI, AND R. W. FIELD. The Na_2 $4^1\Sigma_g^+ \sim 2^3\Pi_g \sim 1^3\Delta_g$ Triple Perturbation: Deperturbation of the (v_Σ, v_Π, v_Δ) = (6, 2, 7) and (7, 3, 8) Interactions 215

TAKESHI SAKAIZUMI, MAMI OKA, SHOH MIYAKE, OSAMU OHASHI, AND ICHIRO YAMAGUCHI. The Microwave Spectra of Pyrrole-3-carbonitrile and Pyrrole-2-carbonitrile 229

J. C. SARKER, G. R. SUDHAKARAN, R. L. BHATTACHARJEE, L. H. JOHNSTON, I. MUKHOPADHYAY, AND R. M. LEES. Stark Spectroscopy of CD_3OD with the HCN Laser 243

G. WLODARCZAK, N. HEINEKING, AND H. DREIZLER. The Hyperfine Structure of Germyl Chloride 252

ROBERTA N. MULFORD. The Fourier Transform Spectrum of the Infrared Combination Band ($\nu_1 + \nu_3$) of UF_6 260

J. L. HARDWICK AND GALEN C. WHIPPLE. Far Infrared Emission Spectrum of the OH Radical 267

LETTER TO THE EDITOR

F. JENČ. Estimation of the Dissociation Energy of KRb by the Reduced Potential Energy Curve (RPC) Method 274

ERRATUM

Volume 140, Number 2 (1990): Juliusz G. Radziszewski, Jacek Waluk, and Josef Michl, "FT Visible Absorption Spectroscopy of Porphine in Noble Gas Matrices," pp. 373–389 277

NUMBER 2, JUNE 1991

D. PAPOUŠEK, R. TESAŘ, P. PRACNA, S. CIVIŠ, M. WINNEWISSER, S. P. BELOV, AND M. YU. TRETYAKOV. High-Resolution Fourier Transform and Submillimeter-wave Study of the ν_6 Band of $^{12}CH_3F$ 279

TAKASHI ISHIWATA, ATSUSHI ISHIGURO, AND KINICHI OBI. Optical–Optical Double Resonance Spectroscopy of Cl_2: Analysis of the $A^3\Pi(1_u)$–$X^1\Sigma_g^+$ System 300

TAKASHI ISHIWATA, ATSUSHI ISHIGURO, AND KINICHI OBI. Optical–Optical Double Resonance Spectroscopy of Cl_2: Analysis of the $1_g(^3P_2)$–$A^3\Pi(1_u)$ System 321

JIN-HAI SI, TAKASHI ISHIWATA, AND KINICHI OBI. Optical–Optical Double Resonance Spectroscopy of Cl_2: Absolute Position of the Lowest-Lying $2_g(^3P_2)$ Ion-Pair State 334

M. KOTZIAN AND N. RÖSCH. Intermediate Neglect of Differential Overlap Spectroscopic Studies of Lanthanide Complexes: Diatomic Lanthanide Oxides PrO and TmO 346

P. A. BLOCK AND R. E. MILLER. Near Infrared Spectroscopy of the HCN–HX (X = Cl, Br, and I) Binary Complexes 359

C. AMIOT. The $X^1\Sigma_g^+$ Electronic State of K_2 370

A. BENIDAR, R. FARRENQ, G. GUELACHVILI, AND C. CHACKERIAN, JR. "Anomalous" Rovibrational Intensities in the $\Delta v = 1$ Bands of SH ($X^2\Pi$) 383

D. GODDON, A. GROH, H. J. HANSES, M. SCHNEIDER, AND W. URBAN. Heterodyne Frequency Measurements of the 1–0 Band of HF at 2.7 μm 392

M. D. VANEK, J. S. WELLS, AND A. G. MAKI. Pressure Dependent Lineshift Measurements on OCS 398

SEPPO ALANKO. The ν_6 Band of $^{13}CH_3I$ 406

M. LUDWICZAK, D. R. LATIMER, AND R. P. STEER. The $\tilde{B}$–$\tilde{X}$ Laser-Induced Fluorescence Excitation Spectrum of Jet-Cooled Cl_2CS: Origin Location and Partial Vibronic Analysis 414

D. W. MERDES, J. PLÍVA, AND A. S. PINE. Perpendicular Bands of Cyclopropane in the 3.5 μm Region 431

S. ADAKKAI KADAVATHU, R. SCULLMAN, R. W. FIELD, J. A. GRAY, AND M. LI. Excited States of NiH and NiD in the 15 500–19 000 cm^{-1} Region: Rotational Analysis with the Aid of Laser-Induced Fluorescence Spectroscopy 448

D. COSSART AND C. COSSART-MAGOS. Optical Spectrum of the $^{15}NO^{2+}$ Dication 471

V. ŠPIRKO, W. P. KRAEMER, AND J. BURDA. Anharmonic Potential Function, Geometry, and Energy Levels of SiH_3 478

ROBERT CHAMPION, PETER D. GODFREY, AND FIONA L. BETTENS. A Semirigid Bender Analysis of Ring Puckering in Cyclopentene 488

FRANK HOLLAND AND MANFRED WINNEWISSER. The Molecular Structure of SCCCS 496

M-L. JUNTTILA, J. L. DOMENECH, G. T. FRASER, AND A. S. PINE. Molecular-Beam Optothermal Spectroscopy of the 9.6-μm ν_{14} Band of Benzene ... 513

K. PARK, K. V. CHANCE, I. G. NOLT, J. V. RADOSTITZ, M. D. VANEK, D. A. JENNINGS, AND K. M. EVENSON. Pressure Broadening of the 2.5 THz $H^{35}Cl$ Rotational Line by N_2 and O_2 521

W. P. KRAEMER, V. SPIRKO, P.-A. MALMQVIST, AND B. O. ROOS. Inversion–Vibration Energies of CH_3^- and Adiabatic Electron Affinity of CH_3 526

NOTES

V. ŠPIRKO AND W. P. KRAEMER. Rotation–Vibration Energy Levels of CH_3 541

G. BLANQUET, P. COUPE, F. DERIE, AND J. WALRAND. Spectral Intensities in the $2\nu_2^0$ Band of Carbonyl Sulfide 543

AUTHOR INDEX FOR VOLUME 147 546

SUBJECT INDEX FOR VOLUME 147 548